

# STAFFORD *Virginia*



STAFFORD COUNTY UTILITIES

# 2019

Stafford County is pleased to report that in 2019, your drinking water quality met or surpassed every state and federal requirement that safeguards public health.



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# MESSAGE FROM THE DIRECTOR

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Dear Customers:

The Stafford County Department of Public Works is pleased to present this year's Water Quality Report. The information in this report summarizes the results of hundreds of tests taken during the 2019 calendar year, ensuring the water we provide to you meets all requirements of the Virginia Department of Health (VDH) and the Environmental Protection Agency (EPA).

## The Department of Public Works provided an average of 9.4 million gallons of water per day in 2019

The Department of Public Works provided an average of 9.4 million gallons of water per day in 2019, through more than 711 miles of water line, to serve more than 113,000 valued customers.

Stafford's water system is monitored 24/7 and maintained by our team of highly skilled operators, engineers, technical experts, and administrative staff to ensure our drinking water meets or exceeds the U.S. Environmental Protection Agency's safe drinking water requirements.

These accomplishments highlight the integrated approach we take every day to protect public health by effectively managing our water resources, raising awareness about important water-related issues, and providing exceptional customer service.

Our community also plays an important role. We would like to thank you for doing your part to keep our systems functioning properly by keeping Fats, Oils, Grease (FOG) and wipes out of your household pipes.

Our commitment to you, our customer and the community is evident with every call we take, and the hundreds of tests we perform, to provide the better-than-required water you have come to expect from us. This report summarizes the great value available for you, our customer, every time you reach for your tap.



JASON D. TOWERY

*Director of Public Works*

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# SOURCE WATER ASSESSMENT

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In 2002, the Virginia Department of Health (VDH) conducted an assessment of our water reservoir at Smith Lake to determine how susceptible it is to contamination. An assessment of Lake Mooney and the Rappahannock River was completed in early 2019. Since there are industrial, commercial, agricultural and residential land uses in our watersheds and our sources are open to the environment, they are susceptible to contamination. Although we operate state-of-the-art treatment

facilities to a standard that ensures protection of public health, we ask for your help to properly dispose of trash, waste oil, antifreeze, and other hazardous materials and minimize application of fertilizer and pesticides so that they do not enter streams, storm drains and other water bodies. You can report illegal dumping to the Stafford County Sheriff's Office at 540-658-4400. A copy of the Smith Lake and the Lake Mooney assessment is available by calling us at (540) 658-8600.



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## WHERE DOES MY WATER COME FROM?

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Stafford County has three surface water sources for its supply. The Smith Lake Water Treatment Plant draws water from Smith Lake. Our second and third water sources serve the Lake Mooney Treatment Plant which draws water from Lake Mooney. Lake Mooney is recharged by pumping water from the Rappahannock River. Combined, our treatment facilities provide roughly 3.1 billion gallons of clean drinking water every year.

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# SUBSTANCES IN WATER

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## POTENTIAL SOURCES OF WATER CONTAMINANTS



- Microbial contaminants such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations and wild life
- Inorganic contaminants such as salts and metals, which can be naturally occurring or result from urban stormwater runoff, industrial or domestic wastewater discharge, oil and gas production, mining or farming
- Pesticides and herbicides which may come from a variety of sources such as agriculture, urban storm water runoff and residential uses
- Organic chemical contaminants including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations and urban storm water runoff septic systems

To ensure that tap water is safe to drink, the U.S. EPA prescribes regulations limiting the amount of certain contaminants in water provided by public water systems. U.S. Food and Drug Administration regulations establish limits for contaminants in bottled water that must provide the same protection for public health. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of these contaminants does not necessarily indicate that the water poses a health risk. The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals, in some cases, radioactive material, and substances resulting from the presence of animals or from human activity. Substances that may be present in source water include: Microbial Contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, or wildlife; Inorganic Contaminants, such as salts and metals, which can be naturally occurring or may result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming; Pesticides and Herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses; Organic Chemical Contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production and may also come from gas stations, urban stormwater runoff, and septic systems; Radioactive Contaminants, which can be naturally occurring or may be the result of oil and gas production and mining activities.



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## LEAD IN HOME PLUMBING

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If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The Stafford County Department of Public Works is responsible for providing high quality drinking water. We have no lead service lines, but we cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes, or until it becomes cold or reaches a steady temperature before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the EPA's Safe Drinking Water Hotline at 1-800-426-4791 (TTY 711) or at <http://www.epa.gov/safewater/lead>.

Lake Mooney,  
pictured to the right,  
has the capability to  
supply over

**5.4 Billion**

gallons of water to  
Stafford County  
residents each year.



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## COMMUNITY PARTICIPATION

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Today, we face many water-related issues including protection of our water resources, timely renewal and replacement of aging pipes, planning to meet current and future water needs, and upgrades to our treatment facilities to meet increasingly stringent water quality requirements. We ask for and value your input as these issues are discussed. The Stafford County Board of Supervisors meets on the first and third Tuesdays and the Utilities Commission meets the second Tuesday of each month in the Board Chambers located at 1300 Courthouse Road, Stafford, VA. Please call (540) 658-8630 or visit the County website at <https://staffordcountyva.gov/> for a schedule of meeting dates and times.

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## IMPORTANT HEALTH INFORMATION

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Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised individuals, such as those undergoing chemotherapy, organ transplant recipients, those with HIV/AIDS or other immune system disorders, and some elderly people and infants can be particularly at risk from infections. If you feel you are at risk, please seek advice about drinking tap water from your health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline at (800) 426-4791.

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# FATS OILS GREASE

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When fats, oils, grease (FOG), wipes and other foreign items go down the pipes in your home, they cause expensive plumbing problems. The sanitary sewer system is designed to carry wastewater away from your home to the Wastewater Treatment Facilities where it is safely and effectively cleaned. As fats, oils and grease cool, they thicken and remain sticky, collecting all other items, such as wipes, that pass through your pipes creating one massive blockage and preventing the water from reaching the treatment facilities.

The clean-up of sewer backups and the additional maintenance required to reverse the damage caused by the improper disposal of these items leads to higher utility bills, costly home plumber visits and expensive pipe replacement. Sewer overflows and backups can also cause health hazards. Sewage is full of bacteria and contaminants that pose a serious threat to people and their pets.



The annual cost to remove Fats, Oils and Grease from Stafford sewer pipes is:

**\$1,634,900**



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## BENEFITS OF FLUSHING WATER MAINS

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To continue delivering the highest quality water possible to residents, firefighters and Stafford businesses, Public Works crews conduct hydrant flushing on a rotating basis throughout Stafford County.

The flushing process cleans the water system by opening the fire hydrants to increase water flows, allowing crews to "flush" any minerals and sediment that naturally accumulates in water mains over the course of the year. By testing each of the 6,000 hydrants in Stafford County, Public Works crews can check and record water pressure to ensure each hydrant is properly maintained and available for use in the event of a fire.

For more information and tips for minimizing water discoloration during hydrant flushing, please visit [www.staffordcountyva.gov/flushing](http://www.staffordcountyva.gov/flushing)

Stafford County, Virginia  
Table of Detected Contaminants

Regulated Contaminants							
Parameter	Average Results	Range of Results	Units	MCL	MCLG	In Compliance? Yes / No	Source
Haloacetic Acids (HAA5s)	36 (highest 4-qr. compliance avg.)	11 - 43 (for individual sample sites)	ppb	Average of last 4 quarters less than or equal to 60 ppb	None	Yes	Byproduct of drinking water disinfection
Trihalomethanes (TTHMs)	50 (highest 4-qr. compliance avg.)	22 - 69 (for individual sample sites)	ppb	Average of last 4 quarters less than or equal to 80 ppb	None	Yes	Byproduct of drinking water disinfection
Fluoride	0.72	0.72 - 0.88	ppm	4	4	Yes	Added to water to promote strong teeth
Nitrate + Nitrite	0.12	0.07 - 0.17	ppm	10	10	Yes	Erosion of natural deposits, fertilizer runoff
Total Organic Carbon (TOC)	The running annual average of quarterly TOC percent removals ranged from 1.23 to 1.33		None	Treatment Technique: Running annual avg. of quarterly TOC % removals must be >= 1.0		Yes	Naturally present in the environment
Barium	0.014	N/A	ppm	2	2	Yes	Erosion of natural deposits
Beta/Photon Emitters	1.3	N/A	pCi/L	50	0	Yes	Decay of natural and manmade deposits
Unregulated Contaminants							
Parameter	Average Results	Range of Results	Units	MCL	MCLG	In Compliance? Yes / No	Source
Sodium	22.1	21.3 - 22.8	mg/L	N/A	N/A	N/A	Erosion of natural deposits
Chlorine (samples taken from the water distribution system)							
Parameter	Highest 12-Month Running Annual	Range of Results (individual sites)	Units	MRDL	MRDLG	In Compliance? Yes / No	Source
Chloramines	3.2	0.0 - 4.4	ppm	4.0	4.0	Yes	Added as water disinfectant
Metals (samples taken from the customer's tap)							
Parameter	Action Level	MCLG	Test Results	Amount detected (90th percentile)	Number of sampling locations above the EPA Action Level	In Compliance? Yes / No	Source
Lead	90% of all test results must be 15 ppb or less	0 ppb	Results from 2018 <QL to 3 ppb; 100% of the 51 samples taken were 15 ppb or less	1.8 ppb	0	Yes	Corrosion in household plumbing systems
Copper	90% of all test results must be 1.3 ppm or less	1.3 ppm	Results from 2018 100% of all test results were 1.3 ppm or less	0.07 ppm	0	Yes	Corrosion in household plumbing systems
Turbidity (samples taken from filtered water at the treatment facility)							
Parameter	MCL	Units	Max. Detected	Lowest Percentage of Monthly Samples Meeting Limit	In Compliance? Yes / No	Source	
Turbidity	Treatment Technique (TT) - at least 95% of all samples taken each month must be 0.3 NTU or less; 1 NTU maximum	NTU	0.29	100% of all samples taken were 0.3 NTU or less	Yes	Soil erosion from runoff	
UNREGULATED CONTAMINANT MONITORING RULE - PART 4 (UCMR4)							
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	SAMPLE TYPE	AVERAGE AMOUNT DETECTED	RANGE	TYPICAL SOURCE		
Anatoxin-a	2019	Finished Water	<QL	<QL	Naturally Present in the Environment		
Cylindrospermopsis	2019	Finished Water	<QL	<QL	Naturally Present in the Environment		
Total Microcystins & Nodularins	2019	Finished Water	<QL	<QL	Naturally Present in the Environment		

1. Tests were performed for an additional 115 possible contaminants which were NOT DETECTED.  
 2. The presence of E. Coli was NOT DETECTED in any monthly bacteriological sample.  
 3. Lead and copper results are from 2018- testing not required again until 2021.  
 4. The PMCL for beta particles is 4 mrem/year. The EPA considers 50 pCi/L to be the level of concern for beta particles

# DEFINITIONS

**AL, Action Level:** the concentration of a contaminant that, if exceeded triggers treatment or other require-ments that an owner shall follow.

**Level 1 assessment** - a study of the waterworks to identify potential problems and determine, if possible, why total coliform bacteria have been found in our waterworks.

**MCL, Maximum Contaminant Level:** the highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

**MCLG, Maximum Contaminant Level Goal:** the level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

**MRDL, Maximum Residual Disinfectant Level:** the highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

**MRDLG, Maximum Residual Disinfectant Level Goal:** the level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

**NTU, Nephelometric Turbidity Units:** a measurement of the clarity of water.

**pCi/L, Picocuries per liter:** measure of radio activity ppm, Parts per million: measure of concentration equal to 1 cent in \$10,000 or about 1 minute in 694 days.

**ppb, Parts per billion:** measure of concentration equal to 1 cent in \$10 million or about 1 minute in 1,902 years.

**TT, Treatment Technique:** required process intended to reduce the level of a contaminant in drinking water.







# 2019

**WATER QUALITY  
REPORT**

## STAFFORD COUNTY UTILITIES

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